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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/489,511	01/21/2000	Venkat V. Easwar	LS/0002.00	5933

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09/05/2002

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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT

PAPER NUMBER

2612

DATE MAILED: 09/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PRG

Office Action Summary

Application No.
09/489,511

Applicant(s)
Easwar et al.

Examiner
Luong Nguyen

Art Unit
2612



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/12/2002 and 6/19/2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8 and 11 6) ☐ Other: _____

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-40 filed on 4/12/2002 and 6/19/2002 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 (lines 21 and 24), both recite the limitation "co-sited Green pixels". It is unclear because it is not known that the limitation "co-sited Green pixels" in line 21 is the same with "co-sited Green pixels" in line 24 or different.

Claim 26 (lines 21 and 22), both recite the limitation "co-sited Green pixels". It is unclear because it is not known that the limitation "co-sited Green pixels" in line 21 is the same with "co-sited Green pixels" in line 22 or different.

Claims 2-22 are rejected as being dependent on claim 1.

Claims 27-40 are rejected as being dependent on claim 26.

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Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1-6, 22, 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Acharya (US 6,392,699).

Regarding claims 1 and 26, Acharya discloses an integrated color interpolation and color space conversion technique and apparatus, comprising receiving an image in a first color space RGB (figure 6, column 1, lines 14-25); while said image is in said first color space, companding the image by mapping the luminosity values captured at said RGB mosaic into a space that is more linear to a human eye (companding module 625, figure 5, column 10, lines 20-25), while deferring any interpolation of pixels until after the companded image has been transferred (color interpolation may be achieved in a software application running on computer system 710 rather than directly in camera 730, figure 6, column 11, lines 58-67); transferring the companded image to a server computer (companded image is transferred to server computer via bus 660, figures

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5-6); storing information describing a second color space (color space YCrCb is stored in memory 711 or disk 718, figure 6, column 12, lines 29-31); at the server computer, transforming the image into said second color space, including interpolating the primary channel of second color space, computing the secondary channels of said second color space, including performing substeps of computing one of said secondary channels of said second color space by differencing Red pixels with co-sited Green pixels (different chrominance of Red color, Cr, column 2, lines 62-67) interpolated from said RGB mosaic, and computing the other of said secondary channels of said second color space by differencing Blue pixels with co-sited Green pixels (different chrominance of Blue color, Cb, column 2, lines 62-67) interpolated from said RGB mosaic (integrated color space conversion and color interpolation may be achieved in a software application running on computer system 710 rather than directly in ^{camera} ~~computer~~ 730, column 11, line 58 through column 12, line 39, column 6, line 15 through column 7, line 67).

Regarding claims 2 and 27, Acharya discloses wherein Green incorporates colors that are substantially green (column 5, line 6).

Regarding claims 3 and 28, Acharya discloses wherein said second color space comprises a GUV color space (YCrCb color space, column 5, lines 1-35).

Regarding claim 4, Acharya discloses the secondary channels of the first color space comprise predominantly Red and Blue (column 2, lines 45-50).

Regarding claims 5 and 29, Acharya discloses an RGB mosaic (column 1, lines 45-50).

Regarding claims 6 and 30, Acharya discloses a Bayer pattern (column 1, lines 45-50).

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Regarding claim 22, Acharya discloses wherein said interpolating step includes applying averaging technique (column 4, lines 50-60).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 11-14, 17, 31, 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya (US 6,392,699) in view of Acharya et al. (US 6,348,929).

Regarding claims 7 and 31, Acharya ('699) fails to specifically disclose after the image is transformed into second color space, compressing the transformed image. However, Acharya ('929) discloses after spatial scaling the image data is compressed by compression unit 630 (figure 6, column 13, lines 5-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('699) by the teaching of Acharya ('929) in order to speed the delivery of image data over bus and out of the image capture device (column 12, lines 65-66).

Regarding claims 11 and 35, Acharya ('699) and Acharya ('929) disclose wherein said second color space comprises GUV color space having individual G, U, V (color space YCrCb,

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column 2, lines 60-67). Acharya ('699) and Acharya ('929) fail to specifically disclose compressing step comprises individually compressing each plane. However, Acharya ('929) discloses color image data is compressed by compression unit 630 (figure 6). It would have been obvious to include individually compressing each plane in the device of Acharya ('699) and Acharya ('929) in order to improve image quality of a color image in a color processing system including color transformation and image compression.

Regarding claims 12 and 36, Acharya ('929) discloses transmitting the compressed, transformed image to a target platform (figure 6).

Regarding claims 13 and 37, Acharya ('699) discloses computing device (column 11, lines 58-62).

Regarding claims 14 and 38, Acharya ('699) discloses desktop computer (computer, column 11, lines 58-62).

Regarding claim 17, Acharya ('699) and Acharya ('929) fail to specifically disclose restoring said compressed, transformed image at the target platform. However, Acharya ('929) disclose compressed image could be downloaded to the personal computer (figure 6). It would have been obvious to include the step of restoring the compressed image at the computer in order to display the image on the monitor for viewing.

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8. Claims 8-10, 23-24, 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya (US 6,392,699) in view of Acharya et al. (US 6,348,929) further in view of Wang et al. (US 5,682,152).

Regarding claims 8 and 32, Acharya ('699) and Acharya ('929) fail to specifically disclose using transformed- based compression. However, Wang et al. teach compression algorithm using DCT (discrete cosine transform) algorithm (column 1, lines 55-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('699) and Acharya ('929) by the teaching of Wang et al. in order to transform image in JPEG format.

Regarding claims 9 and 33, Wang et al. disclose wavelet transform-based compression (column 1, lines 55-60).

Regarding claims 10 and 34, Wang et al. disclose DCT base compression (column 1, lines 55-60).

Regarding claim 23, Wang et al. disclose quantization and entropy coding (see abstract).

Regarding claim 24, Wang et al. disclose Huffman coding (see abstract).

9. Claims 15 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya (US 6,392,699) in view of Acharya et al. (US 6,348,929) further in view of Fukuoka (US 5,754,227),

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Regarding claims 15 and 39, Acharya ('699) and Acharya ('929) fail to specifically disclose said transmitting step is performed using wireless transmission. However, Fukuoka teaches images captured by the camera can be transferred through the I/O card 15 which functions as modem connected to an on-line service such as American On Line (column 3, lines 50-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('699) and Acharya ('929) by the teaching of Fukuoka in order to transmit the image to a remote device in anywhere in the world without using cable.

10. Claims 16, 18-21, 25 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya (US 6,392,699) in view of Acharya et al. (US 6,348,929) further in view of Rabbani et al. (US 5,412,427).

Regarding claims 16 and 40, Acharya ('699) and Acharya ('929) fail to specifically disclose using wire-line transmission. However, Rabbani et al. disclose the compressed signals could be downloaded to the personal computer by cable interface (wire-line transmission, column 6, lines 15-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('699) and Acharya ('929) by the teaching of Rabbani et al. in order to transmit directly signal between two devices. This prevents the interference of other signal in the air.

Regarding claims 18-19, Rabbani et al. disclose transforming the non-compressed image into a standard-format color image (JPEG format, column 4, lines 60-65).

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Regarding claim 20, Rabbani et al. disclose transforming the non-compressed image into YUV color space (figure 6).

Regarding claim 21, Rabbani et al. disclose transforming the non-compressed image into RGB color space (figure 6).

Regarding claim 25, Rabbani et al. disclose said transmitting step occurs before the primary channel of the second color space is interpreted to full resolution for the image (figure 6).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Luong Nguyen** whose telephone number is **(703) 308-9297**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reach on **(703) 305-4929**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

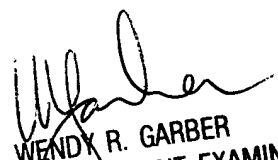
or faxed to:

(703) 872 - 9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a genreal nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

LN LN
8/25/2002


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600